



Oregon

Tina Kotek, Governor

Department of Environmental Quality
Office of Compliance and Enforcement
700 NE Multnomah Street, Suite 600
Portland, OR 97232-4100
(503) 229-5696
FAX (503) 229-5100
TTY 711

October 24, 2023

CERTIFIED MAIL: 7016 2710 0000 4221 4254

Boise Cascade Wood Products, LLC
c/o CT Corporation System, Registered Agent
780 Commercial St, SE, Suite 100
Salem, OR 97301

Re: Notice of Civil Penalty Assessment and Order
Case No. WQ/I-ER-2021-186

This letter is to inform you that the Oregon Department of Environmental Quality (DEQ) has issued Boise Cascade Wood Products, LLC, a civil penalty of \$18,368 for discharging wastewater from log deck sprinkling operations at its facility in Elgin, Oregon, to Phillips Creek without a permit authorizing such a discharge and for failing to conduct required wastewater monitoring. Wastewater from log deck sprinkling contains pollutants that when discharged to water bodies depletes the dissolved oxygen necessary to support fish and other aquatic life.

Included in Section IV of the enclosed Notice is an order requiring Boise Cascade to take measures to better understand how log deck wastewater discharged to Phillips Creek and to prevent such discharges in the future.

If you wish to appeal this matter, DEQ must receive a request for a hearing within 20 calendar days from your receipt of this letter. The hearing request must be in writing. Send your request to DEQ Office of Compliance and Enforcement:

Via mail – 700 NE Multnomah Street, Suite 600, Portland, Oregon 97232

Via email – DEQappeals@deq.oregon.gov

Via fax – 503-229-6762

Once DEQ receives your request, we will arrange to meet with you to discuss this matter. If DEQ does not receive a timely written hearing request, the penalty will become due. Alternatively, you can pay the penalty by sending a check or money order to the above address.

The attached Notice further details DEQ's reasons for issuing the penalty and provides further instructions for appealing the penalty. Please review and refer to it when discussing this case with DEQ.

DEQ may allow you to resolve part of your penalty through the completion of a Supplemental Environmental Project (SEP). SEPs are environmental improvement projects that you sponsor instead of

paying a portion of the penalty. Further information is available by calling the number below or at <http://www.oregon.gov/deq/Regulations/Pages/SEP.aspx>.

DEQ's rules are available at <http://www.oregon.gov/deq/Regulations/Pages/Statutes.aspx> or by calling the number below.

If you have any questions, please contact Jeff Bachman at 503-229-5950 or toll free in Oregon at 800-452-4011, extension 5950.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kieran O'Donnell', written in a cursive style.

Kieran O'Donnell, Manager
Office of Compliance and Enforcement

Enclosures

cc: Justin Sterger, DEQ
Mike Hiatt, DEQ
Accounting, DEQ
Brien Flanagan, Schwabe Williamson & Wyatt PC, 1211 SW 5th Ave Ste 1900, Portland OR
97204

1 BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

2 OF THE STATE OF OREGON

3 IN THE MATTER OF:)
4 BOISE CASCADE) NOTICE OF CIVIL PENALTY
WOOD PRODUCTS, LLC,) ASSESSMENT AND ORDER
5 a Delaware limited liability company,)
Respondent.) CASE NO. WQ/I-ER-2021-186
6

7 I. AUTHORITY

8 The Department of Environmental Quality (DEQ) issues this Notice of Civil Penalty Assessment
9 and Order (Notice) pursuant to Oregon Revised Statutes (ORS) 468.100, ORS 468.126 through 468.140,
10 ORS Chapters 183 and 468B and Oregon Administrative Rules (OAR) Chapter 340, Divisions 011 and 12.

11 II. FINDINGS OF FACT

12 1. At all relevant times, Respondent operated a stud mill and plywood manufacturing
13 facility located at 90 S. 21st Street in Elgin, Oregon.

14 2. At all relevant times, Respondent was authorized to manage, treat and dispose of all
15 process and non-process wastewaters generated by facility operations pursuant to a Water Pollution
16 Control Facilities Permit issued and administered by DEQ (the Permit).

17 3. The Permit authorized Respondent to operate a wastewater disposal system and dispose
18 of wastewater only in conformance with the limitations, requirements and conditions of the Permit.

19 4. Pursuant to the "Permitted Activities" section, the Permit does not authorize discharge
20 of any facility wastewater to waters of the state unless specifically authorized by the permit.

21 5. On September 22, 2021, Respondent discharged wastewater from log deck operations
22 mixed with groundwater to Phillips Creek.

23 6. Wastewater from Respondent's log deck operations contains pollutants that create
24 biochemical and carbonaceous oxygen demand in water bodies.

25 7. Biochemical and carbonaceous oxygen demand can deplete the dissolved oxygen in
26 water bodies needed to support naturally occurring aquatic life.

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8. Investigation of site conditions by Respondent subsequent to the September 22, 2021, discharge demonstrates an ongoing potential for wastewater from log deck operations to discharge to Phillips Creek via underground flow.

9. Schedule B, Condition 1.a requires Respondent to monitor its wastewater monthly when land applying for the following parameters: pH, electrical conductivity, chemical oxygen demand (COD), total Kjeldahl-N (TKN), total dissolved solids, total arsenic, total cobalt, total sodium and sodium absorption rate.

10. Respondent land applied wastewater in July 2023, but did not monitor its wastewater for pH, electrical conductivity, chemical oxygen demand (COD), total Kjeldahl-N (TKN), total dissolved solids, total arsenic, total cobalt, total sodium and sodium absorption rate.

11. Schedule B, Condition 1.a requires Respondent to monitor its wastewater used for log sprinkling monthly for the following parameters: pH, electrical conductivity, chemical oxygen demand, total dissolved solids, total arsenic, and total cobalt.

12. Respondent used wastewater for log sprinkling in July 2023 but did not monitor that wastewater for pH, electrical conductivity, chemical oxygen demand, total dissolved solids, total arsenic, and total cobalt.

III. CONCLUSIONS

1. On September 22, 2021, Respondent violated ORS 468B.050(1)(a) by discharging waste to waters of the state without a permit authorizing such discharge. Respondent discharged wastewater from log deck operations, a waste pursuant to ORS 468B.005(9), to Phillips Creek, a water of the state pursuant to ORS 468B.005(10), without permit authorization as described in Section II, above. This is a Class I violation pursuant to OAR 340-012-0055(1)(c). DEQ assesses an \$8,800 civil penalty for this violation.

2. Respondent violated ORS 468.025(2) by failing to conduct wastewater monitoring required by Schedule B of its Permit as described in Section II, Paragraphs 9 through 12. These are Class I violations pursuant to OAR 340-012-0055(1)(o). DEQ assesses a \$9,568 civil penalty for these violations.

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1 IV. ORDER TO PAY CIVIL PENALTY

2 Based upon the foregoing FINDINGS OF FACTS AND CONCLUSIONS, Respondent is
3 hereby ORDERED TO:

4 1. Pay a total civil penalty of \$18,368. The determinations of the civil penalties are attached as
5 Exhibits 1 and 2 and are incorporated as part of this Notice.

6 If you do not file a request for hearing as set forth in Section V below, your check or money
7 order must be made payable to "**Department of Environmental Quality**" and sent to the **DEQ,**
8 **Business Office, 700 NE Multnomah Street, Suite 600, Portland, Oregon 97232.**

9 2. Within 60 days of this order becoming final by operation of law or on appeal, Respondent
10 must submit an updated groundwater monitoring plan to DEQ for review. The facility must conduct a
11 detailed analysis of all wells and creek elevations to ensure accurate groundwater and creek elevations
12 are obtained and represented in the groundwater flow contours as described in the August 14, 2023
13 Memorandum from Rick Hill, DEQ, to Justin Sterger, DEQ regarding "Log Yard Dye Tracer Study
14 Results - Boise Cascade Elgin Complex, Elgin, Oregon, dated November 16, 2022," and incorporated
15 into this Notice as Attachment A. The updated plan must also include the proposed installation of
16 additional monitoring wells to appropriately characterize the site and include a schedule for
17 installations in the southern portion of the log deck where the seeps have been observed (in the area of
18 seeps 5-6 west of the bridge and 8 east of the bridge at minimum – see Figure 4 of the Dye Study Ltr
19 Report – dated 11-16-2022). The updated plan must also include at least one interior well within the
20 log yard boundary between the up and downgradient wells.

21 3. Within 30 days of receiving comments from DEQ on the groundwater monitoring plan,
22 revise the plan consistent with DEQ comments and implement the plan.

23 4. Within 60 days of this order becoming final by operation of law or on appeal,
24 Respondent must submit for DEQ review a plan for installation of flow monitoring equipment
25 sufficient to track the daily amounts of water irrigated across the log deck against the returned daily
26 flow from log sprinkling.

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1 5. Within 30 days of receiving comments from DEQ on the flow monitoring plan, revise
2 the plan consistent with DEQ comments and implement the plan.

3 6. Within 365 days of implementation of the flow monitoring plan, provide DEQ a
4 summary report of irrigated flows versus return flows and estimated losses via evaporation, soil
5 saturation, and volume discharged to groundwater.

6 7. Within two years of the initiation of the updated groundwater monitoring plan,
7 Respondent must submit to DEQ a Groundwater Quality Analysis Report, which must include
8 proposed downgradient groundwater concentration limits for constituents of concern listed in OAR
9 340-040-0020, including iron.

10 V. NOTICE OF RIGHT TO REQUEST A CONTESTED CASE HEARING

11 You have a right to a contested case hearing on this Notice, if you request one in writing. DEQ
12 must receive your request for hearing **within 20 calendar days** from the date you receive this Notice. If
13 you have any affirmative defenses or wish to dispute any allegations of fact in this Notice or attached
14 exhibits, you must do so in your request for hearing, as factual matters not denied will be considered
15 admitted, and failure to raise a defense will be a waiver of the defense. (See OAR 340-011-0530 for
16 further information about requests for hearing.) You must send your request to: **DEQ, Office of**
17 **Compliance and Enforcement, 700 NE Multnomah Street, Suite 600, Portland, Oregon 97232**, fax
18 it to **503-229-6762** or email it to **DEQappeals@deq.oregon.gov**. An administrative law judge
19 employed by the Office of Administrative Hearings will conduct the hearing, according to ORS
20 Chapter 183, OAR Chapter 340, Division 011 and OAR 137-003-0501 to 0700. You have a right to be
21 represented by an attorney at the hearing, however you are not required to be. If you are an individual,
22 you may represent yourself. If you are a corporation, partnership, limited liability company,
23 unincorporated association, trust or government body, you must be represented by an attorney or a duly
24 authorized representative, as set forth in OAR 137-003-0555.

25 Active duty Service members have a right to stay proceedings under the federal Service
26 Members Civil Relief Act. For more information contact the Oregon State Bar at 1-800-
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1 452-8260, the Oregon Military Department at 503-584-3571, or the nearest United States Armed
2 Forces Legal Assistance Office through <http://legalassistance.law.af.mil>. The Oregon Military
3 Department does not have a toll free telephone number.

4 If you fail to file a timely request for hearing, the Notice will become a final order by default
5 without further action by DEQ, as per OAR 340-011-0535(1). If you do request a hearing but later
6 withdraw your request, fail to attend the hearing or notify DEQ that you will not be attending the
7 hearing, DEQ will issue a final order by default pursuant to OAR 340-011-0535(3). DEQ designates
8 the relevant portions of its files, including information submitted by you, as the record for purposes of
9 proving a prima facie case.
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13 10/24/2023

14 Date

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14 Kieran O'Donnell, Manager
Office of Compliance and Enforcement
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EXHIBIT 1

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-012-0045

VIOLATION NO. 1 Discharging wastes to waters of the state without a permit authorizing such discharge in violation of ORS 468B.050(1)(a).

CLASSIFICATION: This is a Class I violation pursuant to OAR 340-012-0055(1)(c).

MAGNITUDE: The magnitude of the violation is moderate pursuant to OAR 340-012-0130(1), as there is no selected magnitude specified in OAR 340-012-0135 applicable to this violation, and the information reasonably available to DEQ does not indicate a minor or major magnitude.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is: $BP + [(0.1 \times BP) \times (P + H + O + M + C)] + EB$

"BP" is the base penalty, which is \$4,000 for a Class I, moderate magnitude violation in the matrix listed in OAR 340-012-0140(3)(b)(A)(ii) and applicable pursuant to OAR 340-012-0140(3)(a)(E)(ii) as Respondent has an Tier II industrial source WPCF permit.

"P" is whether Respondent has any prior significant actions, as defined in OAR 340-012-0030(19), in the same media as the violation at issue that occurred at a facility owned or operated by the same Respondent and receives a value of 8 pursuant to OAR 340-012-0145(2). P is assigned an initial value of 10 as Respondent has prior significant actions consisting of nine or more Class I equivalent violations stemming from Case Nos. WQ/I-WR-2016-047 and WQ/I-WR-2017-089. According to OAR 340-012-0145(2)(d)(A)(i), this amount is reduced by 2 because the formal enforcement actions in which prior significant actions were cited were issued more than three years before the date the current violation occurred for a final P value of 8.

"H" is Respondent's history of correcting prior significant actions and receives a value of 0 according to OAR 340-012-0145(3)(c) because there is insufficient information on which to base a finding under paragraphs (3)(a) or (b).

"O" is whether the violation was repeated or ongoing and receives a value of 0 according to OAR 340-012-0145(4)(a) because there is insufficient information on which to base another finding under paragraphs (4)(b) through (4)(d).

"M" is the mental state of the Respondent and receives a value of 4 according to OAR 340-012-0145(5)(c) because Respondent's conduct was negligent. Discharge of wastewater from its operations to waters of the state are expressly prohibited by Respondent's wastewater disposal permit. By failing to take the action needed to prevent the unpermitted discharge,

Respondent failed to take reasonable care to avoid the foreseeable risk of committing the violation.

"C" is Respondent's efforts to correct or mitigate the violation and receives a value of 0 according to OAR 340-012-0145(6)(f) because the violation or the effects of the violation could not be corrected or minimized.

"EB" is the approximate dollar value of the benefit gained and the costs avoided or delayed as a result of the Respondent's noncompliance. It is designed to "level the playing field" by taking away any economic advantage the entity gained and to deter potential violators from deciding it is cheaper to violate and pay the penalty than to pay the costs of compliance. In this case, "EB" receives a value of \$0 as DEQ has insufficient information on which to base another finding.

PENALTY CALCULATION: $\text{Penalty} = \text{BP} + [(0.1 \times \text{BP}) \times (\text{P} + \text{H} + \text{O} + \text{M} + \text{C})] + \text{EB}$
= \$4,000 + [(0.1 x \$4,000) x (8 + 0 + 0 + 4 + 0)] + \$0
= \$4,000 + (\$400 x 12) + \$0
= \$4,000 + \$4,800 + \$0
= \$8,800

EXHIBIT 2

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-012-0045

VIOLATION NO. 2 Failing to conduct wastewater monitoring required by Schedule B of the Permit in violation of ORS 468B.025(2).

CLASSIFICATION: This is a Class I violation pursuant to OAR 340-012-0055(1)(o).

MAGNITUDE: The magnitude of the violation is moderate pursuant to OAR 340-012-0130(1), as there is no selected magnitude specified in OAR 340-012-0135 applicable to this violation, and the information reasonably available to DEQ does not indicate a minor or major magnitude.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is: $BP + [(0.1 \times BP) \times (P + H + O + M + C)] + EB$

"BP" is the base penalty, which is \$4,000 for a Class I, moderate magnitude violation in the matrix listed in OAR 340-012-0140(3)(a)(A)(ii) and applicable pursuant to OAR 340-012-0140(3)(a)(E)(ii) as Respondent has an Tier II industrial source WPCF permit.

"P" is whether Respondent has any prior significant actions, as defined in OAR 340-012-0030(19), in the same media as the violation at issue that occurred at a facility owned or operated by the same Respondent and receives a value of 6 pursuant to OAR 340-012-0145(2). P is assigned an initial value of 10 as Respondent has prior significant actions consisting of nine or more Class I equivalent violations stemming from Case Nos. WQ/I-WR-2016-047 and WQ/I-WR-2017-089. According to OAR 340-012-0145(2)(d)(A)(ii), this amount is reduced by 4 because all the formal enforcement actions in which prior significant actions were cited were issued more than five years before the date of current violation for a final P value of 6.

"H" is Respondent's history of correcting prior significant actions and receives a value of 0 according to OAR 340-012-0145(3)(c) because there is insufficient information on which to base a finding under paragraphs (3)(a) or (b).

"O" is whether the violation was repeated or ongoing and receives a value of 3 according to OAR 340-012-0145(4)(c) because there were from seven to 28 occurrences of the violation. There were 11 occurrences of the violation as detailed in the Notice.

"M" is the mental state of the Respondent and receives a value of 4 according to OAR 340-012-0145(5)(c) because Respondent's conduct was negligent. The monitoring requirements are express conditions of the Permit. By failing to take the actions necessary to conduct the

monitoring, Respondent failed to exercise reasonable care to avoid the foreseeable risk of committing the violation.

"C" is Respondent's efforts to correct or mitigate the violation and receives a value of 0 according to OAR 340-012-0145(6)(f) because the violation or the effects of the violation could not be corrected or minimized.

"EB" is the approximate dollar value of the benefit gained and the costs avoided or delayed as a result of the Respondent's noncompliance. It is designed to "level the playing field" by taking away any economic advantage the entity gained and to deter potential violators from deciding it is cheaper to violate and pay the penalty than to pay the costs of compliance. In this case, "EB" receives a value of \$368. This is the amount Respondent gained by avoiding the \$565 cost of conducting the required monitoring. This "EB" was calculated pursuant to OAR 340-012-0150(1) using the U.S. Environmental Protection Agency's BEN computer model.

PENALTY CALCULATION: $\text{Penalty} = \text{BP} + [(0.1 \times \text{BP}) \times (\text{P} + \text{H} + \text{O} + \text{M} + \text{C})] + \text{EB}$
= \$4,000 + [(0.1 x \$4,000) x (6 + 0 + 3 + 4 + 0)] + \$368
= \$4,000 + (\$400 x 13) + \$368
= \$4,000 + \$5,200 + \$368
= \$9,568

State of Oregon
Department of Environmental Quality

Memorandum

To: Justin Sterger, Eastern Region, Bend **Date:** August 14, 2023

From: Rick Hill
Eastern Region, Pendleton

Subject: Groundwater: *Log Yard Dye Tracer Study Results - Boise Cascade Elgin Complex, Elgin, Oregon*, dated November 16, 2022; *Elgin Complex, 2022 Annual Report, WPCF 103020*, dated February 2023; Groundwater Quality Review – Boise Cascade Log Yard, Elgin, Oregon, dated July 7, 2023.

I have reviewed the referenced report and letters and my comments to these documents are provided in this memorandum.

Log Yard Dye Tracer Study Results:

Page 3, Seeps: The report indicates that green dye made its first appearance in the creek seeps after approximately 21 days following the introduction of the dye. The report also indicates that red florescent dye was not detected in any of the seep samples indicating the water in the process water return ditch and conveyance system did not leak and reach the seeps.

Green dye making its way to the seeps shows a connection between the discharge at the surface to groundwater. The statement that red dye did not make it to the seeps is not proof that discharge to the surface does not make its way to groundwater, only that dye that may have leaked from the collection system was not on a flow path with any of the seeps or that the test did not run long enough for dye to make it to the seeps.

The 21-day time lag from the initiation of dye discharge to when it showed up in the seep supports using the relatively high hydraulic conductivity (K) that was assumed for the site. The closest seep that showed evidence of green dye is approximately 250 feet from the bermed discharge point. This suggests the groundwater velocity could be roughly 11.9 feet per day, close to the assumed velocity of 12.6 feet per day from the estimated hydraulic properties.

Based on this estimate it is not surprising that no sign of red dye was seen in any of the seeps. Using the same flow direction from the bermed area to the seep, I estimate that it was more than 1,500 feet from the red dye collection area to the creek. Using a velocity of 11.9 ft/day it would take roughly 18 weeks for the red dye to make it to the creek. Therefore, the red dye might not have made it to the creek before mid-December. Certain parts of the conveyance system may have been slightly closer, but it is unlikely that the test ran long enough for red dye to make it to the creek.

Page 3, Findings: Valley concludes that the process water conveyance system appears not to be leaking because there was no red dye in MH-2, groundwater wells and seeps. They also conclude that the study confirms that the log yard is hydraulically connected to the subsurface under significant ponding conditions because dye was observed in at least two of the seeps. They go on to speculate that infiltration of the ponded water contained within the bermed area may not be representative of infiltration that might occur during normal log deck irrigation.

The report also points out the top of the screened interval at MW-3 is approximately 5 feet below the water table and that the limited purging of MW-3 when it was sampled may not have created enough draw down to allow dye at the surface of the water table to be seen in the sample from MW-3.

The report also speculated that there may be an impervious layer causing some type of short circuit of the dye to the seeps.

DEQ does not agree with most of Valley's findings. DEQ concurs with the conclusion that the log yard is hydraulically connected with the subsurface, but not just under ponded conditions. Moreover, as DEQ stated prior to the test, the absence of dye in wells or seeps does not indicate no leakage. Only that there is not a direct flow path between potential leakage and the wells or seeps. DEQ does not believe that ponding must occur to result in sprinkled log deck water making it to groundwater. The continuous irrigation volume that is sprinkled on the log deck is very significant and the collection system only captures surface runoff. With the volume of water applied there is a continuous source of recharge making its way through the vadose zone to the groundwater. The soils that the logs are sitting on are not impermeable and only water that does not soak into the soil runs off to the collection system. This interpretation is supported by the rather large permeability rate that is suggested in this report. In addition, the USDA Natural Resource Conservation Service (NRCS) web soil survey also classifies the soil in the area of the log deck as phys silt loam that is well drained (Soil description Attached). The continuous and long duration of log sprinkling operations on the well-drained soils also likely results in some mounding of the water table beneath the log sprinkling operations.

DEQ agrees that the screened interval at MW-3 is likely limiting the appearance of dye in the well. The infiltration of the dyed water clearly made its way to the water table and migrated to the seeps. DEQ sees insufficient evidence of a widespread limiting layer that short circuits groundwater to the seeps. Based on the well-drained soils in the log yard, it is most likely that irrigation of the logs causes infiltration of the log deck sprinkling to the water table and that water likely then migrates with groundwater towards the creek. The concentrations in the groundwater undoubtedly include irrigation water mixed with groundwater.

The facility must evaluate all the log deck wells to ensure they are screened across the top of the water table. Monitoring wells that have the top of their screens continuously more than two feet below the water table must be replaced with properly screened wells. Boise must also assess and update all contour maps for the site. If updated contour maps confirm discharge from the log deck is mixing with groundwater and migrating to the creek, Boise will be required to fully evaluate potential impacts to the creek. As part of this assessment, Boise will be required to conduct a Water Quality Analysis Report (WQAR) and propose concentration limits for all downgradient compliance wells at the site. Moreover, discharge to the creek is not allowed under the current water pollution control facilities (WPCF) permit for the site and the facility will need to halt the illegal discharge or may be required to work towards a new national pollution discharge elimination system (NPDES) permit.

If the WQAR indicates there are adverse impacts to groundwater or the potential for environmental harm from the discharge to the creek, Boise may be required to conduct a remedial investigation and feasibility study (RI/FS) to fully evaluate the impacts and identify possible remedies.

Elgin Complex, 2022 Annual Report, WPCF 103020:

The annual report was a transmittal of tables and charts related to the various portions of the site associated with the WPCF permit for the site. There was no explanation or interpretation given for any of the data.

Some of the charts in the report are difficult to read. All the charts used the same symbol for all the plots. This was only an issue when there were more than four wells. When there were more than four wells it was very difficult to distinguish which well goes to which graph. With color as the only way to distinguish the wells, some colors are indistinguishable from others. DEQ recommends that all future submittals use different symbols and colors for each well. Having different symbols and colors would make it much easier to distinguish between different wells in some of the graphs.

Water level contour maps for the site are inadequate. The contour maps have significant numbers of data points that are omitted from the water level contour maps, with no valid explanation given. Therefore, it is not possible to evaluate upgradient to downgradient comparisons at the site. There are many examples where the groundwater elevations were omitted from the contour maps and the contour maps completely contradict the elevation charts. For example, the Elevation Chart 1 from the PWP2 shows a relatively consistent relationship with MW-1, MW-2 and MW-3. In this example the chart shows MW-1 has the highest elevation and MW-3 the lowest elevation (Chart attached). However, all the quarterly contour maps for 2022 (Attached) show MW-3 higher than MW-2. There are many other examples where the elevation charts are contradictory to the water level contours. This provides convincing evidence that the water level contour maps do not accurately reflect groundwater flow at the site.

The facility must provide a detailed evaluation of all wells at the site and construct accurate groundwater contour maps. Once accurate groundwater contour maps are produced, and valid upgradient to downgradient comparisons can be made, the facility must conduct a Water Quality Analysis Report (WQAR). As part of the WQAR the facility must thoroughly evaluate the groundwater system at the site, determine appropriate contaminants of concern, evaluate upgradient to downgradient concentrations at the site, and propose appropriate concentration limits for the contaminants of concern for each appropriate groundwater monitoring facility (i.e., the log yard, SWTD, etc.).

Groundwater Quality Review – Boise Cascade Log Yard, Elgin, Oregon:

Page 1, 1st paragraph: The letter indicates that based on groundwater contour data, monitoring well MW-1 is in the upgradient direction, MW-2 and MW-4 are mid-gradient, and MW-3, MW-5 and MW-6 are in the apparent downgradient direction from the log yard.

Based on the elevation at MW-1 it is the highest groundwater elevation at the log yard. However, based on the groundwater contour maps at the site, groundwater flow at MW-1 is going slightly south of east generally north of or possibly towards MW-2. Groundwater flow at MW-2 is generally either going north of MW-5 or possibly somewhat towards MW-5. The groundwater contours indicate groundwater flow moving through MW-1 is generally skirting along the northern boundary of the site or even moving off site to the north. This is not a good upgradient well for most of the log yard. Groundwater flow near monitoring well MW-4 is generally slightly south of east to nearly due east. The flow at MW-4 is generally heading a little south of MW-5. On the south side of the site MW-3 and MW-6 generally show flow going south of east. There does not appear to be a good upgradient well that is on a flow path with these wells. Moreover,

the groundwater flow at these wells is highly questionable because there is no shown connection with the creek. Any connection to the creek will likely have a significant influence on flow near these wells. See attached contour maps.

The contour maps provided for the site do not appear to provide an accurate flow of groundwater at the site. Significant numbers of water level data points are identified as suspect and not included in the contour maps. For example, the contour maps show elevations for 31 wells and three elevations from the creek; however, in the contour maps from 2022 significant numbers of the measurements are flagged as suspect and not used in the contour maps. The maps state that suspect values are eliminated for clarity. Elimination of large numbers of control points is not providing clarity but instead biasing the contours showing incorrect flow in many areas of the site. In the contour maps for 2022, 26% to 68% of elevations were not used in the quarterly contour maps. There was no explanation for why the data were suspect. Having such a large percentage of unused elevations is unacceptable, without a valid reason. An accurate contour map with flow directions cannot be produced using only 32% to 74% of the elevation data. Some of the data points appear to be consistently flagged and removed, but some points are used sometimes and not others. All data points including the elevations from the creek must be used to illustrate accurate flow at the site. Boise will need to conduct a thorough evaluation of the wells and provide rationale for not using data and propose replacement wells and creek measuring points if necessary.

The letter attempts to compare concentrations and trends from the monitoring wells suggesting monitoring wells MW-1 and possibly MW-2 are representative of upgradient concentrations. From this it is concluded that the increasing concentrations at MW-3 are the result of concentrations passing across the site.

Based on groundwater contours and flow paths from the contours, there is little chance that groundwater flow in the vicinity of MW-1 makes its way anywhere close to any of the wells other than a possible minor influence at MW-2. The groundwater flow pattern at MW-1 indicates flow in this area is skirting along the northern boundary and is an unsatisfactory representation of upgradient conditions for the log yard.

Represented groundwater contours across the entire site generally do an unsatisfactory job of representing flow conditions at the site. The flow cannot be accurately represented without incorporation of significant elevation control points including the creek elevations. Based on some of the omitted elevations it appears that the groundwater contours should be showing the creek as a gaining stream at the location of B-2 and B-3. It is less clear in the vicinity of B-1. The contour maps generally ignore the creek elevations and cut straight across the creek, indicating there is no connection with the creek. Additionally, many other elevations are omitted from the contour maps. Many other groundwater elevations are frequently omitted with no reason given for the "questionable" data. The facility must provide adequate justification for elimination of any of the elevations from the contour maps.

It is likely that additional monitoring wells may be needed to accurately contour the groundwater flow at the site. However, prior to adding more wells the facility must accurately contour the available data. Because of the chronic omission of water level elevations, it would seem the facility should resurvey the wells and creek measuring points to ensure there is not survey error with the existing water levels. Once resurveyed an accurate contour map using all the elevations must be produced. Once a reasonable contour map for the site is produced, DEQ will evaluate the need for additional wells at the site.

Summary

The dye tests clearly show connection with practices at the surface and groundwater. Speculation was given that the connection is only present because of ponded water from the test. DEQ does not agree with this characterization, the volume of irrigation to the log deck on the well-drained soils of the log deck do not require ponding for water to move down to groundwater. There is undoubtedly impacts to groundwater from the irrigation practices. Because of the large volume of water being irrigated, there may be a slight mound that develops from the irrigation. However, given the relatively high hydraulic conductivity estimated beneath the log deck, the mound may not extend all the way to land surface. There cannot be an accurate evaluation of the impacts to groundwater without accurate groundwater contour maps. The facility must be able to distinguish flow paths, so reasonable upgradient to downgradient comparisons of concentrations can be made. The full extent of impacts to the creek as well as other potential downgradient users cannot be fully assessed without accurate contour maps. The maps must accurately reflect the connection of the groundwater to the creek, as well as being able to show flow paths from upgradient to downgradient wells.

There are inconsistencies with the groundwater contour data for the site. The hydrographs showing the elevation history of the groundwater in wells, frequently do not match with the water level contours presented for the site. Another issue is the connection between the creek and groundwater. The contour maps do not appear to show any connection between the groundwater and the creek. The contours presented consistently cut straight across the creek and do not reflect any connection to groundwater. Accurate analysis of the groundwater sampling results is not possible using the contour maps presented. The facility must conduct a detailed analysis of all wells and creek elevations to ensure accurate groundwater and creek elevations are obtained and represented in the groundwater flow.

Boise must submit a work plan to address the water level elevations at the site. Once the work plan is approved by the Department, Boise must implement the work plan and provide accurate water level maps for the site. Once submitted, DEQ will review the well network to determine if additional wells are needed.

Boise must conduct a WQAR for the entire site. At a minimum, the WQAR must thoroughly evaluate the groundwater conditions and the fate of all discharges at the site, evaluate all contaminants of concern for each facility, and propose concentration limits for each contaminant of concern.

An RI/FS may be required if the WQAR determines there is an adverse impact to the aquifer or if the data show the discharge has the potential to cause environmental harm to the creek.

If you have any questions regarding any of my comments, please email me (rick.hill@deq.oregon.gov) or call me on my temporary cell phone at (971) 263-1120.

Attachments: PWP2-Chart 1 Elevation
Groundwater Contours—1st Quarter 2022
Groundwater Contours—2nd Quarter 2022
Groundwater Contours—3rd Quarter 2022
Groundwater Contours—4th Quarter 2022
Log Yard Soil Survey

Union County Area, Oregon

47B—Phys silt loam, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 24I1
Elevation: 2,700 to 3,400 feet
Mean annual precipitation: 16 to 21 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 100 to 150 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Phys and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Phys

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 21 inches: very cobbly clay loam
H3 - 21 to 60 inches: extremely cobbly loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: R009XY004OR - Fan 14-17 PZ

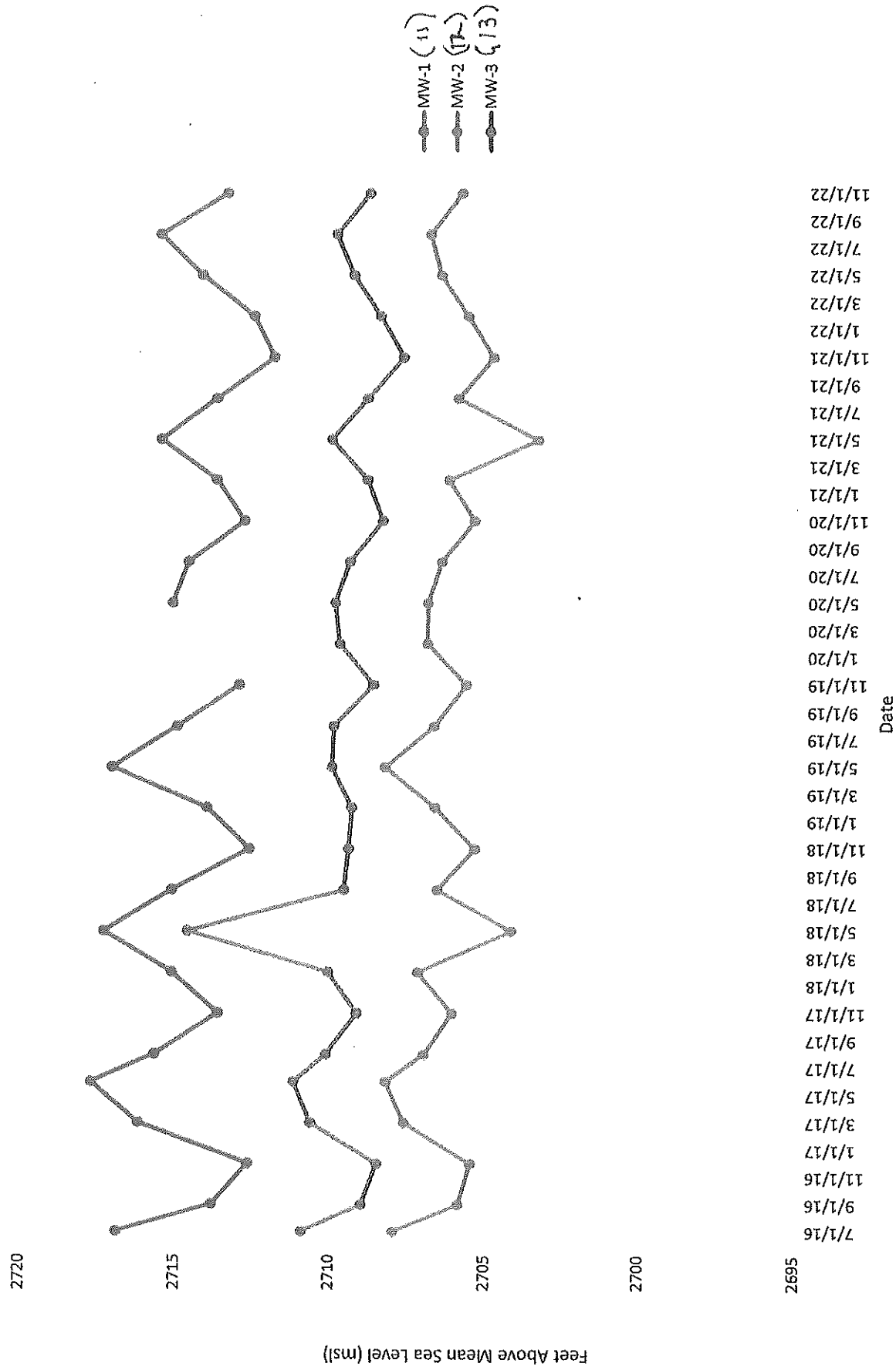
Hydric soil rating: No

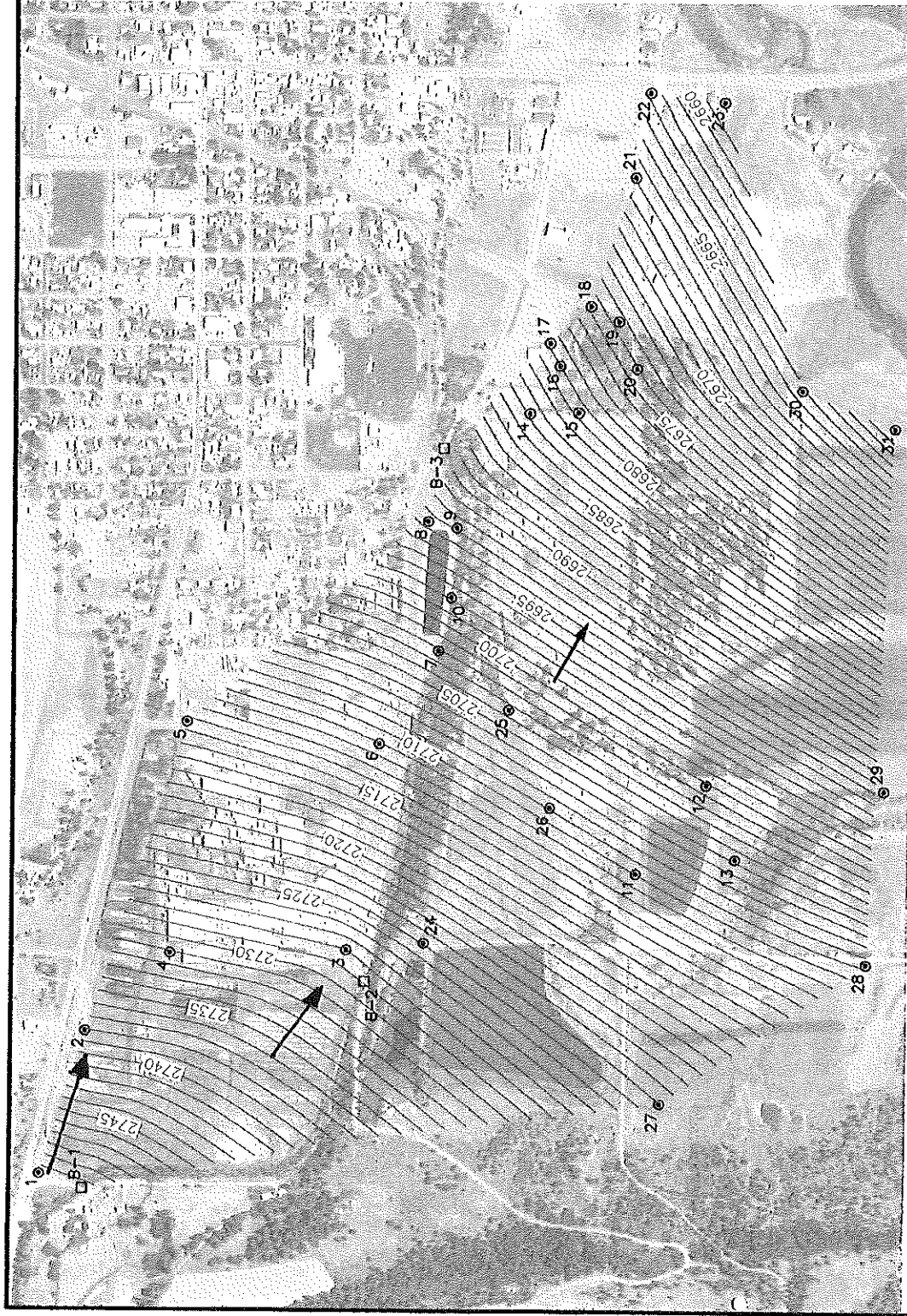
Data Source Information

Soil Survey Area: Union County Area, Oregon

Survey Area Data: Version 20, Sep 14, 2022

Chart 1. Elevation



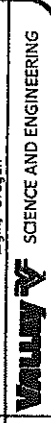


EXPLANATION

- ① Monitoring Well Location
- Bridge Location
- 2710 — Groundwater Contour Interval
= 1 ft
- Groundwater Flow Direction

Figure 1. Groundwater Contours – February 2022

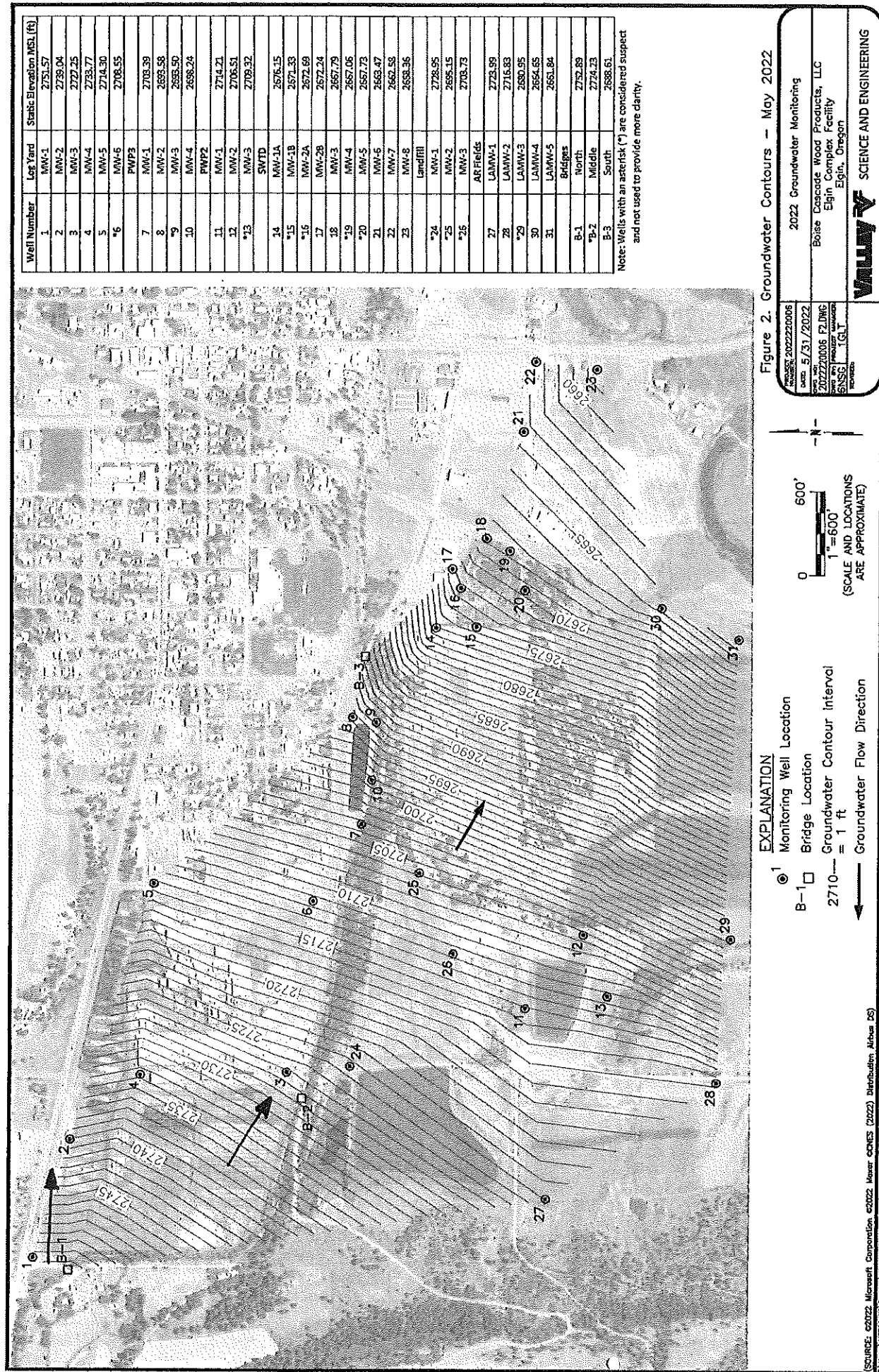
PROJECT: 2022220006	2022 Groundwater Monitoring
DATE: 4/4/2022	
FILE NO: 2022220006 F1.DWG	Boise Cascade Wood Products, LLC
DATE: 10/1/2021	Elgin Complex Facility
SCALE: 1"=161'	Elgin, Oregon
DRAWN: [Signature]	
CHECKED: [Signature]	
DATE: 4/4/2022	
PROJECT: 2022220006	2022 Groundwater Monitoring
DATE: 4/4/2022	
FILE NO: 2022220006 F1.DWG	Boise Cascade Wood Products, LLC
DATE: 10/1/2021	Elgin Complex Facility
SCALE: 1"=161'	Elgin, Oregon
DRAWN: [Signature]	
CHECKED: [Signature]	
DATE: 4/4/2022	



SCIENCE AND ENGINEERING

Note: Wells with an asterisk (*) are considered suspect and not used to provide more clarity.

SOURCE: 2022220006 Groundwater Monitoring, 2022220006 Master CHWS (2022) Distribution Atlas (D) 5/1/2022
 2/1/2022 Drawing: 2022220006 Boise Cascade Elgin Groundwater Monitoring (D) 2022220006 F1.DWG April 4, 2022 MGT11432





EXPLANATION

- ① Monitoring Well Location
- B-1 Bridge Location
- 2710— Groundwater Contour Interval = 1 ft
- Groundwater Flow Direction

Figure 3. Groundwater Contours — August 2022

PROJECT: 2022220006	2022 Groundwater Monitoring
DATE: 9/26/2022	
BY: 2022220006 EJD/NC	Boise Cascade Wood Products, LLC
FOR: 2022220006 EJD/NC	Egin Complex Facility
SHEET: 1	Egin, Oregon
TOTAL: 1	
REVISED:	

Well Number	Log Yard	Static Elevation MSL (ft)
1	MW-1	2748.44
2	MW-2	2737.64
3	MW-3	2727.23
4	MW-4	2732.59
5	MW-5	2714.03
6	MW-6	2708.22
7	PWP3	
8	MW-1	2702.14
9	MW-2	2693.18
10	MW-3	2691.48
11	MW-4	2695.81
12	PWP2	
13	MW-1	2715.55
14	MW-2	2708.86
15	MW-3	2709.87
16	SWTD	
17	MW-1A	2686.90
18	MW-1B	2685.99
19	MW-2A	2686.08
20	MW-2B	2682.46
21	MW-3	2683.12
22	MW-4	2685.98
23	MW-5	2684.15
24	MW-6	2689.37
25	MW-7	2686.33
26	MW-8	2685.11
27	Landfill	
28	MW-1	2730.45
29	MW-2	2682.10
30	MW-3	2703.55
31	AR Fields	
32	LAMW-1	2776.54
33	LAMW-2	2712.35
34	LAMW-3	2676.67
35	LAMW-4	2682.27
36	LAMW-5	2680.06
37	Bridges	
38-1	North	No Reading
38-2	Middle	2722.51
38-3	South	No Reading

Note: Wells with an asterisk (*) are considered suspect and not used to provide more clarity.

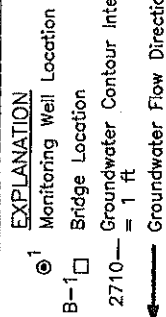



Figure 4. Groundwater Contours - November 2022

Well Number	Log Yard	Static Elevation MSL (ft)
1	MW-1	2750.02
2	MW-2	2737.89
3	MW-3	2728.15
4	MW-4	2732.32
5	MW-5	2714.40
*6	MW-6	2708.25
	PMP3	
7	MW-1	2708.44
8	MW-2	2695.68
9	MW-3	2693.44
10	MW-4	2697.71
	PMP2	
11	MW-1	2713.41
*12	MW-2	2705.86
*13	MW-3	2708.82
	SWTD	
*14	MW-1A	2674.58
*15	MW-1B	2688.59
16	MW-2A	2672.66
17	MW-2B	2672.01
18	MW-3	2688.29
19	MW-4	2666.86
*20	MW-5	2664.55
21	MW-6	2662.50
22	MW-7	2651.21
23	MW-8	2655.76
	Landfill	
24	MW-1	2726.80
*25	MW-2	2689.15
*26	MW-3	2700.35
	AR Fields	
27	LA/MW-1	2724.69
28	LA/MW-2	2711.35
29	LA/MW-3	2679.85
30	LA/MW-4	2662.87
31	LA/MW-5	2661.39
	Bridges	
B-1	North	2751.39
*B-2	Middle	2723.13
B-3	South	2687.58

Note: Wells with an asterisk (*) are considered suspect and not used to provide more clarity.

PROJECT#	2022ZD00068
DATES:	12/20/2022
PROJECT NAME:	Boise Cascade Wood Products, LLC Eigin Complex Facility Eigin, Oregon
SINSE	1/GT
REVISION:	

2022 Groundwater Monitoring


SCIENCE AND ENGINEERING

SOURCE: ©2022 Microsoft Corporation ©2022 Motor QMES (2022) Distribution Airbus DS
 2-Users/MS711431/Device/Working Drafting CuiJin/Grainmeter Handling/MS7222220006 54.dwg Dec2022